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Applicant (Actual Inventor) GEORGE ALEXANDER LAWTON.
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 Complete Specification Accepted, 26th September, 1937.
 Acceptance Advertised (Sec. 60).. .. 14th October, 1937.

Class 95.5.

Drawing attached.

COMPLETE SPECIFICATION.

"An improved coupling device for use with motor vehicles and trailers."

I, GEORGE ALEXANDER LAWTON, of Commercial Road, Port Adelaide, in the State of South Australia, Commonwealth of Australia, Motor Body Builder, hereby declare this invention and the manner in which it is to be performed, to be fully described and ascertained in and by the following statement:—

My invention relates to an improved coupling device for use with motor vehicles and trailers, and is applicable to analogous purposes, the object of the invention being to provide means whereby two vehicles of the nature indicated can be securely attached to each other and at the same time to provide for automatic lubrication of the main coupling joint and to automatically sustain a film of lubricant between the two main coupling elements, and furthermore, to provide means whereby the chain of the ball bearing part of the coupling will be prevented from working loose when submitted to frictional rotary pressure when vehicles fitted with my device are negotiating corners or bends in the road over which they are travelling.

My improved coupling device may be fitted in such manner that the ball bear-

ing end is either secured to a motor or to a trailer according to preference.

But in order that my invention may be more clearly understood I will now describe the same by aid of the accompanying illustrative drawings wherein:—

Fig. 1 is a side elevation of the device illustrating the assembly of the principal parts.

Fig. 2 is a sectional side elevation of the 10 main portion of the structure.

Fig. 3 is a plan of Fig. 1.

Fig. 4 is a plan of a locking plate detached from the other portions.

Fig. 5 is a ball coupling likewise detached 15 from the other portions and indicating means for lubrication.

Fig. 6 is a plan of locking lever having a ratchet attached thereto.

Fig. 7 is a plan and side view of locking 20 spring adapted to be attached to main frame to check the rotation of ratchet and locking handle.

In each of the illustrations similar letters of reference are used to denote similar or 25 corresponding parts wherever they occur.

In the drawings a main casing which is adapted to be attached to the front of a

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trailer vehicle consists of a horizontal plate 2 beneath which are flanges a1 furnished with bolt holes a2 by which it may be attached to a suitable coupling at the front 5 of the trailer.

Above the horizontal plate I provide strengthening flanges a3 which terminate in an inverted cup-shaped structure a4, adjacent to which I form an elevated 10 longitudinal structure a5 through which there is an elongated slot b which passes right through the plate 2.

Beneath this portion of the structure I provide a keep or clamp c which consists 15 of a somewhat pear-shaped strip of metal having a bolt hole c1 (Fig. 4), there being a purchase plate or fulcrum at c2 at the narrow end, the broad end being formed with a cup-shaped depression c3 which has 20 an opening or slot as illustrated at c4, such opening or slot being slightly in excess of the diameter of a vertical bolt hereinafter referred to.

Intermediate of the ends of this structure I provide a bolt hole c1 for the pas- 25 sage of a locking vertical bolt d which when placed in its proper position passes through the slot b of the main structure, and is furnished with a screw threaded locking lever 30 e (Fig. 1) or a wing nut e1 (Fig. 3) so that when the parts are assembled the keep or clamp c can be drawn towards the main casting by means of the bolt d fitted with a screw threaded clamp lever a, or by wing 35 nut e1 as in Fig. 3. The parts above mentioned constitute that part of the coupling structure which is attached to the trailing vehicle. In Fig. 6 I have shown aatchet wheel a2 which is attached to or forms a 40 part of the underside of the locking lever e, and in Fig. 7 I have shown a side elevation and plan of a locking spring a3 which is adapted to be attached to the adjacent wall of the main casting, its function being 45 to prevent the locking lever e from working loose. The spring is varied in design and vice according to requirements.

The attachment for the motor vehicle consists of a vertical transverse foundation 50 plate f, more clearly illustrated in Fig. 5, the plate being provided with bolt holes f1 which enable it to be attached to a transverse bar at the rear of a motor not shown in the drawings, suitable bolts and correspondingly placed bolt holes being pro- 55 vided for the purpose indicated.

As an integral part of this plate I form a vertical pillar f2 which terminates in a ball f3 which corresponds in size to the inverted cup or cavity a4 previously described.

Within the ball I drill or otherwise construct one or more holes f4 which serve the purpose of a lubricating well to enable oil to be supplied to the bearing, and if so desired a correspondingly small hole may be drilled in the main structure through which oil may be passed into the cup or cavity a4, the nature of the oil being capable of providing lubrication between the connected parts without other means.

The angle or space between the flanges a1 previously referred to can be increased or decreased according to the angle of the connecting bar on the vehicle to which the trailer coupling is to be attached.

In assembling my device the leading vehicle and the trailer are drawn together, the keep or clamp having first been removed. This enables the upper part of the ball connected with the motor vehicle to be 2 passed into the cup-shaped cavity at the front of the trailing vehicle, and when this has been done it only remains to place the keep or clamp beneath the ball and to draw it upwardly 3 by means of the bolt and nut, thus securing the parts together, care being taken to avoid drawing the several elements so closely together as to rigidly lock them in position.

If so desired a split washer may be applied to the wing nut so as to prevent it from working loose after it has been adjusted.

In the foregoing specification I have referred to the body portion of my device as a main casting, but it is to be understood that this and other parts of the structure may be of wrought metal instead of cast metal if so desired without departing from the general features of my invention.

Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is:—

1. In an improved coupling device for use with motor vehicles and trailers, a main casting comprising of a horizontal platform having vertical flanges extending above and below the horizontal portion, a hollow semi-spherical structure at one end thereof forming a socket for the reception of a ball, "

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longitudinal slot which passes through the forward portion of the platform and is formed with elevated walls, and a small downwardly projecting tongue on the outer end of the spherical member, said parts constituting an integral structure and having bolt holes formed in the rearwardly directed vertical and/or horizontal flanges to facilitate its attachment to a trailing vehicle.

2. In an improved coupling device comprising the parts set forth in Claim 1, the combination therewith of a transverse plate provided with bolt holes to enable such device to be attached to a motor vehicle, a short vertical pillar attached to or made as an integral part of the transverse plate, said pillar being surmounted by an integrally formed spherical structure adapted to fit into the socket which is formed in an associated main casting which is attached to a trailer.

3. In an improved coupling device comprising the combination of a ball and socket structure as set forth in the preceding claims, a depression or cup formed in the upper portion of the ball structure for the storage of lubricating media whereby lubrication is maintained between the contacting parts.

4. In an improved coupling device of the nature set forth in the preceding claims, the combination therewith of a clamp or keep consisting of a flat metal plate prefer-

ably of pear-shaped structure, having an opening at one end which communicates with a round concave recess corresponding in curvature with the radius of the ball, a raised purchase plate or fulcrum adapted to make contact with the underside of a superimposed casting, a bolt hole in the clamp or keep for the reception of a vertical bolt which is adapted to pass through said hole and through the slotted portion of the main casting, and a wing nut or its equivalent for locking the assembled parts together.

5. In an improved coupling device of the nature set forth in the preceding claims, the combination therewith of a ratchet wheel mounted upon or otherwise secured to a locking member attached to the bolt, and a spring which is attached to the main casting, such spring being adapted to act as a pawl to prevent the inadvertent rotation of the locking bolt.

6. The heretofore described coupling device for use with motor vehicles and trailers, constructed substantially as described and illustrated as and for the purposes set forth as a combination of parts.

Dated this 28th day of August, 1937.

GEORGE ALEXANDER LAWTON,

By his Patent Attorney, 30

JOHN HERMAN COOK.

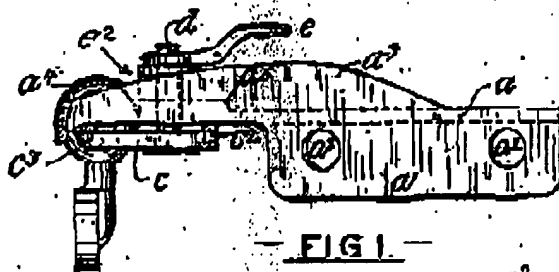
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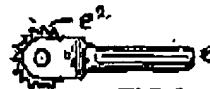
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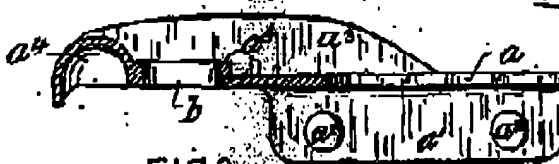
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- FIG 1 -



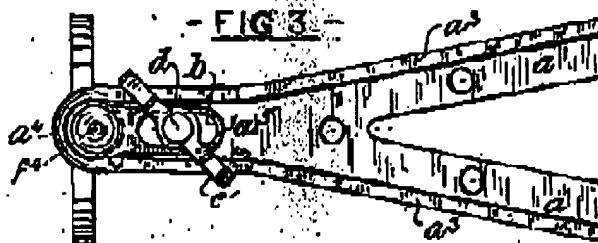
- FIG 6 -



- FIG 2 -



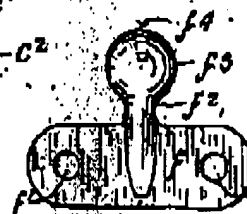
- FIG 7 -



- FIG 3 -



- FIG 4 -



- FIG 5 -